NON-PUBLIC?: N
ACCESSION #: 8812080013
LICENSEE EVENT REPORT (LER)

FACILITY NAME: JAMES A. FITZPATRICK NUCLEAR POWER PLANT PAGE: 1 OF 4

DOCKET NUMBER: 05000333

TITLE: Engineered Safety Feature Actuations Due to Loss of Offsite Power During Refuel Outage
EVENT DATE: 10/31/88 LER #: 88-011-00 REPORT DATE: 11/30/88

OPERATING MODE: N POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: W. Verne Childs
Senior Licensing Engineer TELEPHONE: 315-349-6305

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE TO NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

EIIS Codes are in !

On 10/31/88 at 1011 hours during a refuel outage, trip of the only operating 115 KV offsite reserve power line resulted in a short loss of all alternating current power. Emergency Diesel Generators (EDGs) EK! started and provided power as designed t
Class 1E electrical busses and loads within approximately
12.5 seconds. Loss of power actuated isolation of Residual Heat Removal/Low Pressure Coolant Injection BO! shutdown cooling mode and Reactor Water Cleanup CE!. Systems were restored to normal within approximately 1 hour and EDGs were restored to standby.

Cause of the event is believed to be a momentary fault on the 115 KV line. No corrective action other than restoring systems to normal was required.

LER-79-021 is a similar event describing loss of offsite power while shutdown.

END OF ABSTRACT

EIIS Codes are in !

Description of Event

On October 31, 1988, at 1011 hours during an outage for refuel, maintenance, and modification, both 115 KV offsite reserve power lines were deenergized. One 115 KV offsite circuit had been deenergized eleven days prior to the event for maintenance during the plant outage. The remaining 115 KV offsite circuit fault tripped due to unknown causes and automatically reclosed (energized) approximately 30 seconds after the trip. During outage periods, alternating current (AC) power is provided from the 115 KV lines since the main generator is not available to provide power to the in-plant Normal (non-Class 1E) and Class 1E 4160 VAC and 600 VAC electrical busses EA, EB, EC, and ED).

Loss of both of the 115 KV lines directly resulted in the loss of all Normal 4160 VAC busses EA!. Since Class 1E 4160 VAC busses are normally provided power from the Normal 4160 VAC busses, both Division I and II Class 1E 4160 VAC busses EB! were also deenergized with the loss of both 115 KV lines. Both the Normal (non-Class 1E) and Class 1E 600 VAC power systems EC and ED! were also deenergized because they are powered from the associated 4160 VAC busses.

Emergency Diesel Generators EK! automatically started in response to loss of voltage signals on the Division I and II Class 1E 4160 VAC busses EB! and reenergized these busses and the associated Class 1E 600 VAC busses ED! within approximately 12.5 seconds. This automatic action was in accordance with design.

Since the plant was in a major outage, not all electrical power systems were aligned as they would be during normal plant operation in order to allow maintenance activity. Specifically, the Reactor Protection System (RPS) JC! Power Supply EF! for RPS Bus A (Division I) was being powered from the "maintenance" power source to allow work on the RPS motor generator (MG) set. As a result, when the Division I Class 1E 600 VAC bus was deenergized, RPS Bus A was also deenergized. This caused actuation of part of the Engineered Safety Feature Actuation System (ESFAS) JE! which automatically isolated (closed) the outboard suction valve in the shutdown cooling mode of the Residual Heat Removal (RHR)/Low Pressure Coolant Injection (LPCI) BO! system.

The automatic starting of Emergency Diesel Generators restored power to RPS Bus A and shutdown cooling flow was restored at 1135 hours, approximately 95 minutes

after the start of the event. Since the plant had been shutdown for 65 days and approximately 1/3 of the irradiated fuel had been replaced with new fuel, decay heat from the Reactor Core AC! was very low, and no urgency existed to restore shutdown cooling any quicker. During the time period when shutdown cooling was out of service, reactor coolant temperature increased approximately 10 degrees F.

The ESFAS JE! also caused isolation of the Reactor Water Cleanup System CE!. Reactor Water Cleanup was restored to service approximately two hours after the initiating event.

Normal (non-Class 1E) 4160 VAC EA! and associated non-Class 1E 600 VAC busses EC! were reenergized from the offsite 115 KV system approximately 25 minutes after the start of the event. It would have been possible to energize these busses immediately following the automatic restoration of the 115 KV line that took place approximately 30 seconds after the fault trip. However, since the cause of the fault was not known and since the Class 1E 4160 VAC and 600 VAC busses EB and ED! were being powered from the Emergency Diesel Generators EK!, there was no need for immediate action to restore the Normal 4160 VAC and 600 VAC systems to service. Following observation of stable conditions in the 115 KV system, power was restored to Normal (non-Class 1E) 4160 VAC and associated 600 VAC busses EA and EC!.

Non-safety-related loads such as Condensate SG!, Reactor Water Cleanup CE!, Turbine Building Closed Loop Cooling CC!, Reactor Building Closed Loop Cooling CC!, Normal Service Water KG!, Service Air LF!, Instrument Air LD!, and Breathing Air LH! were restored to service.

Power from the Normal (non-Class 1E) 4160 VAC busses EA! to Class 1E 4160 VAC EB! busses was restored approximately 70 minutes after the start of the event. Emergency Diesel Generators EK! were removed from service and restored to the normal standby mode approximately 85 minutes after the start of the event.

Cause of Event

The ESFAS actuations were a direct result of deenergizing RPS Bus A which provides power to the Primary Containment (Reactor Containment Building) NH! Isolation system. No cause of the fault tripping of the energized 115 KV line was found. It is believed that the momentary fault was the result of high winds at the time of the event. Subsequent operation of the system from the time of the event until submittal of this report has not revealed any additional fault trips or interruptions in service.

Analysis of Event

The actuation of the RHR/LPCI BO! shutdown cooling mode isolation, Reactor Water Cleanup CE! isolation, and automatic starting of Emergency Diesel Generators EK! were in accordance with the design and as described in the Final Safety Analysis Report. Operating personnel recognized that the small decay heat load of the Reactor Core AC! allowed significant time to perform an orderly restoration of shutdown cooling operation.

If the event had occurred when reactor core decay heat was substantially higher, such as shortly after plant shutdown and initiation of shutdown cooling, the removal of decay heat by restoring shutdown cooling to service would have been more important. None of the ESFAS JE! actuations or plant conditions would have prevented prompt restoration of shutdown cooling if it had been required.

If the 115 KV lines had been lost during normal plant operation, no action would have been required. The loss of the 115 KV for a short time would have had no effect on plant operation because during normal plant operation all electrical loads within the plant are provided with power from the Main Generator TB!. Circuit breakers between the 115 KV system and Normal (non-Class 1E) 4160 VAC electrical busses are normally open when power is provided by the main generator.

Corrective Action

Immediate corrective action:

1. Restored offsite power as the power source for both non-Class 1E and Class 1E 4160 VAC and 600 VAC loads.

2. Restored Emergency Diesel Generators to standby.

3. Restored shutdown cooling mode of RHR/LPCI to service.

4. The utility responsible for the operation and maintenance of the 115 KV power line investigated the event and inspected the line for a cause. No definitive reason was identified.

Long-term corrective action: No long-term corrective action is required.

Additional Information

Failed Components - None

Similar Events - LER-79-021 is a similar event in which offsite power was lost

during a plant outage.

ATTACHMENT 1 TO 8812080013 PAGE 1 OF 1

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315 342-3840

Radford J. Converse
Resident Manager
New York Power
Authority

November 30, 1988
JAFP-88-1057

United States Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

REFERENCE: DOCKET NO. 50-333
LICENSEE EVENT REPORT: 88-011-00

Dear Sir:

Enclosed please find referenced Licensee Event Report in accordance with 10 CFR 50.73.

If there are any questions concerning this report, please contact Mr. W. Verne Childs at (315) 349-6305.

Very truly yours,

Radford J. CONVERSE

RJC:WVC:lar

Enclosure

cc: USNRC, Region I (1)
INPO Records Center, Atlanta, GA (1)
American Nuclear Insurers (1)
Internal Power Authority Distribution

NRC Resident Inspector
Document Control Center
LER/OR File

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